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The development and application of a scale to measure the extent and forms of work-family conflict in collectivist cultures

Abstract

Purpose

The aim is to advance the conceptualisation and of work-family conflict (WFC) by developing and validating a scale that is relevant in a collectivist culture setting.

Design/methodology/approach

First, qualitative interviews with 15 bank employees were conducted to establish whether WFC was an issue, its meaning and form, and the relevance of the Carlson, Kacmar and Williams' (2000) scale. Second, drawing on role theory and work-family border theory an additional psychological dimension was developed, and the new scale tested with data from a self-report survey of bank employees ($n=569$). Third, the validity, reliability and measurement invariance of the scale were confirmed with data from a sample of secondary-school teachers ($n=223$).

Findings

The characteristics of collective societies pertinent to WFC were relevant to these middle-class employees, and they experience high levels of WFC. A model with a six-factor structure (time-based, strain-based and psychological-based work-to-family conflict and family-to-work conflict) represents the most theoretically and statistically sound measure of WFC for these samples.

Practical implications

WFC has many negative social and economic consequences. However, there is inadequate evidence on which to base human resource policies to address the issue in collective societies. This study developed and applied a more reliable measure to assess its extent and form to assist in the design of appropriate WFC management practice. It will be of interest to scholars researching and teaching international management, management consultants, policy makers and managers seeking to understand the problem of WFC in collective societies.

Originality/value

This is the first study to establish the validity of a psychological dimension of WFC in a collectivist culture. It confirms the relevance of the strain and time dimensions of the most commonly used multi-dimensional measure but found no evidence of behavioural WFC.

Keywords Psychological-based work-family conflict, Behaviour-based work-family conflict, Role theory, Work/family border theory, Work-family conflict, Cultural context

Introduction

Work-family conflict (WFC) is 'a form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible in some respects' (Greenhaus and Beutell, 1985, p.77) and focuses on the problem employees have in balancing work and family life. WFC has many negative consequences for organisations: lower performance, recruitment and retention difficulties, and absenteeism, and for individuals: stress, poor wellbeing, and lower job and family satisfaction (Amstad *et al.*, 2011; Wang *et al.*, 2010). Concern about these economic and social costs in advanced economies has stimulated

research, legislation and work-life policies to address them (Greenhaus *et al.*, 2006; Shockley *et al.*, 2017). The issue of WFC is also gaining recognition in Asian countries undergoing rapid economic development and the growth of a highly educated female workforce (Rasheed *et al.*, 2018). However, there is far less state and organisational intervention to alleviate WFC compared with the West (Aktas *et al.*, 2014), and relatively little local research to inform the development of policies and practice. The majority of WFC research has been conducted in economically advanced nations (Europe, North America and Australia) and the prevalent conceptualisations of WFC and solutions offered reflect these cultural contexts (e.g. Carlson *et al.*, 2000; Clark, 2000; Greenhaus and Beutell, 1985). Scholars therefore have cautioned against the automatic transfer of western “best” practice owing to significant cultural differences in work and family life (Choi, 2008; Hassan *et al.*, 2010; Kim and Faerman, 2013; Rajadhyaksha, 2012; Shockley *et al.*, 2017). The term culture in its widest sense includes norms, values and beliefs, as well as structural, legal, economic and social factors, all of which may impact on the form and extent of WFC (Gelfand *et al.*, 2011). According to Hofstede’s cultural framework, the less economically developed nations of the East tend to be characterised as less egalitarian (high power distance), score higher on masculinity v. feminism, and have a lower tolerance of uncertainty and ambiguity. They prioritise group interests and membership (Collectivism), whereas western societies place far greater value on the rights and interests of the individual (Individualism), (Billing *et al.*, 2014; Hofstede *et al.* 2010; Masuda *et al.*, 2012; Spector *et al.*, 2007).

The family has a far greater social and economic role than generally found in economically advanced societies. In the absence of significant state and organisational protection the extended family is the main source of financial, health and welfare support (Adisa *et al.*, 2016; Baland *et al.* 2016; Hassan *et al.*, 2010; LaFav and Thomas, 2017). Therefore, it is argued from a labour economics perspective that employees and family members in developing nations with high unemployment do not see a job as a source of conflict even when it entails long hours and exhausting manual labour because of the economic benefits (Shockley *et al.*, 2017), and that in competitive labour markets WFC has little effect on turnover intentions (Billing *et al.*, 2014). Further, families often live in large multigenerational households that provide child, elder care and domestic help (Amah, 2019; United Nations, 2019). Thus, a major source of WFC found in western societies could be diminished, especially for women (Amah 2019; Ollo-López and Goñi-Legaz, 2017). However, the extensive nature of family ties and the many social and religious duties associated with family life can be onerous potentially leading to greater WFC (Adisa *et al.*, 2016; Rajadhyaksha, 2012). For women this is compounded by a greater adherence to gender role ideology dictating that women should be home makers and men bread winners. Despite some change, the predominance of patriarchy and the subordinate status of women, often underpinned by strongly held religious beliefs, impedes female workforce participation (Jaga and Bagraim, 2017; Rabenu *et al.*, 2017). While gender role inequality is a universal phenomenon its magnitude and persistence in most collective societies suggests that working women may experience far greater WFC and men less (Amah, 2019; Hsu, 2011; Lo, 2003).

A major cultural difference can be found in the nature of the employment relationship. Workplaces are less democratic than in the West, more hierarchical with greater respect for rank and authority, lower tolerance of uncertainty, ambiguity and risk-taking, and stricter adherence to rules. Loyalty to the group, an emphasis on harmonious relationships and avoidance of conflict, and a dislike of competitive behaviour are key features. Workplace relationships are emotional and prevail over tasks, which is different from individualistic cultures where tasks have precedence (Hofstede *et al.* 2010). Supervisors take care of personal as well as work-related issues. Thus, the relationship extends beyond the workplace;

for example, managers, colleagues and supervisors routinely attend family events (Kailasapathy *et al.*, 2014; Major *et al.*, 2008; Powell and Greenhaus, 2010; Wright *et al.*, 2008). Work and family life are closely integrated.

Despite these differences, the comparatively few studies that have been carried out in nations with collectivist culture have tended to apply the same concepts and research techniques without question (Ngo *et al.*, 2005; Stoeva *et al.*, 2002; Wang *et al.*, 2010). WFC is typically measured using scales developed in individualistic cultures rather than designing or adapting them to fit the collective cultural context. It is argued that the use of questionnaires developed in another culture without adaptation and validation may fail to capture differences in the extent and form of WFC (e.g. Carlson *et al.*, 2000; Gelfand and Knight, 2005; Hassan *et al.*, 2010). There clearly is a need for more studies including qualitative methodologies to explore the relevance of measures of WFC in order to inform management practice (Powell *et al.*, 2009; Shockley *et al.*, 2017). This article therefore revisits the theoretical model of WFC and presents empirical research exploring its applicability in a collective cultural context. It argues that current conceptualisations and measures do not include an important psychological dimension of WFC that is particularly relevant to collectivist culture. It tests this proposition by constructing a scale including a new psychological dimension and applying it to samples of bank staff and teachers in Sri Lanka. In doing so it examines whether WFC is a problem, the form it takes, and its effect on job and family satisfaction in this collectivist context. It concludes with a discussion and the implications of the findings for research and the management of WFC.

Theoretical Underpinnings

Role theory and six-factor model of WFC

According to role theory, work and family can be conceptualised as role systems and the role process is an interaction between role performer (focal person) and role sender. Role conflict is created where the ‘simultaneous occurrence of two (or more) sets of pressures are such that compliance with one would make more difficult compliance with the other’ (Kahn *et al.*, 1964, p.19). WFC inter-role conflict arises in two directions: when work pressures affect performance in the family role (work-to-family conflict) and family pressures affect performance in the work role (family-to-work conflict). The bidirectional nature of the WFC is important because the consequences of the conflict are dependent on whether the conflict originates from the work or the family domain (Carlson *et al.*, 2000; Greenhaus and Beutell, 1985). Furthermore, although many studies have employed global measures of Work to Family and Family to Work Conflict, a multi-dimensional approach that distinguishes between the types of WFC “is more useful” (Netemeyer *et al.*, 1996 p.408). A significant body of research, notably that conducted by Greenhaus and Beutell (1985), has identified three types of WFC: time-based, strain-based and behaviour-based. Time-based conflict occurs because ‘time spent on activities within one role generally cannot be devoted to activities within another role’ (p.77). For example, working long hours might interfere with the ability to get things done at home. Strain-based WFC is when ‘roles are incompatible because the strain created by one makes it difficult to comply with the demands of another’. For example, when anxiety and fatigue caused by strain from the work role makes it difficult to perform in a family role. Behaviour-based conflict occurs when ‘specific patterns of in-role behaviours are incompatible with the pattern of behaviour in another role’ (p. 81). For example, a business executive might be expected to be aggressive and objective at work, but family members expect love and kindness. Carlson *et al.* (2000) brought the two directions and three dimensions of WFC together in a six-dimensional model of WFC and created an

18-point scale to measure it. It is a widely used multi-dimensional measure of WFC with over 2350 citations in peer reviewed journals.

The six-dimensional model was developed from research in nations with individualist cultures, predominantly in Europe and North America. Studies in collectivist cultures are relatively few and they mainly focus on the antecedents and outcomes of WFC (e.g. Hsu, 2011; Oren and Levin, 2017; Rabenu *et al.*, 2017; Wang *et al.*, 2010). Moreover, while most have employed the Carlson *et al.*'s (2000) measure to examine WFC in collectivist culture, they have not attempted to confirm or reject the existence of the bidirectional time, strain, and behaviour forms of WFC (Fiksenbaum *et al.*, 2010; Hassan *et al.*, 2010; Padhi and Pattnaik, 2017; Rabenu *et al.*, 2017; Spector *et al.*, 2007). Studies in both individualistic and collective cultures have noted the absence of significant behavioural WFC (e.g. Kailasapathy *et al.*, 2014; Powell and Greenhaus, 2010). Moreover, there is a growing literature suggesting that the three-dimensional model fails to capture a fourth, psychological dimension of WFC that could be especially relevant in a collective context.

Work-Family Border Theory and Psychological WFC

Work-family border theory explains 'how individuals manage and negotiate the work and family spheres and the borders between them in order to attain balance' (Clark, 2000, p.750). According to border theory, the boundaries between work and family domains form a continuum from complete segmentation to complete integration of roles: high segmentation implies work and family domains are separate in terms of physical, temporal and psychological boundaries whereas in high integration there is no distinction between the work and family domain. In the latter case it is argued, it is more difficult to disengage emotionally and spill-over of negative emotions and attitudes from work to home and vice versa could affect performance in either role (Foucreault *et al.*, 2018; Padhi and Pattnaik, 2017). Physical borders can be the location or walls of a workplace or home, temporal borders are set working hours, and psychological borders are thinking patterns and emotions (Clark, 2000). While physical and temporal borders are reflected in time-based and strain-based WFC, the psychological border has not been included in the theoretical models and measurement of WFC (Carlson and Frone, 2003).

There are several aspects of nations with collective culture that suggest they may be vulnerable to psychological WFC. As explained above, the family is the main source of identity, social status, and economic and welfare support but also makes considerable demands on its members (Hassan *et al.*, 2010). Work and home are closely integrated, and studies have found individuals to be more sensitive to interpersonal problems and conflict because of the closely interconnected nature of work and family ties and the desire to maintain harmonious relations in both spheres (Mesquita, 2001; Spector *et al.*, 2007). Close integration makes it difficult to decouple roles emotionally and completely disengage from one in favour of another (Ashforth *et al.*, 2000). Therefore, this psychological aspect of WFC could be particularly significant in a collective culture setting.

In response to growing recognition of a psychological dimension to WFC, Carlson has proposed the extension of her original model to include it (Carlson and Frone, 2003). Psychological-based WFC occurs when one's psychological preoccupation with one role affects performance in another role. That is, thinking about either work or family distracts one's attention while performing in the other role (Cardenas *et al.*, 2004; Carlson and Frone,

2003; Jett and George, 2003). Although strain-based WFC appears to be related to psychological-based WFC, they are conceptually different. Strain-based is a specific form of WFC where physical stress or anxiety arising from home or work affects one's capability to perform in the other role. For example, pressure at work making one too exhausted to attend a family celebration. Currently, systematic research evidence of the existence of the new form of psychological-based WFC is somewhat sparse (Carlson and Frone, 2003). There is virtually none in collectivist cultures which would be a fertile ground for this type of WFC. Moreover, the relevance of the original three forms of WFC in the Carlson model has not been adequately explored in this context. Consequently, this study addresses a lacuna in evidence by answering the question: do the four-forms of WFC exist in a collective cultural context?

Research context: Sri Lanka

Only 4.2% of research in WFC has been carried out in Southern Asia (Shockley *et al.*, 2017). Sri Lanka is a useful research context as it exhibits all the characteristics of collectivist culture associated with WFC, such as large power distance, paternalistic workplace relations, patriarchal family and extended family structure, and little state or organisational support for work-life balance (Kailasapathy *et al.*, 2014). Traditionally, women have primary responsibility for family care. However, the country is undergoing rapid social and economic change, and growth in middle class occupations. The population is aging (life expectancy M/F 72/78 years (WHO, 2018) potentially increasing the burden of elder care. The educational attainment of women equals that of men, 64% entered university in 2018 UGC (2018), and the female labour force participation rate has increased to 34.5% compared to 73% for men (DCS, 2020). The resultant dual-earner families may portend a rise in WFC for both men and women. In this context of rapid change, the continued significance of collective culture cannot be taken for granted and establishing its relevance is an important first step in any empirical study of WFC.

Methods of Investigation

The primary aim is to advance the conceptualisation and measurement of work-family conflict (WFC) by developing and validating a scale that is relevant in a collectivist culture setting. Secondary objectives are to establish whether characteristics typically found to be associated with WFC in collective cultures are relevant to the employees studied, and to assess the extent and form of WFC.

The sources of data are an exploratory qualitative study and self-report surveys of bank staff and secondary school teacher's perceptions of WFC. They are typical of the expansion in middle-class/professional occupations that have an important role in economic performance. Staff in both professions are graduates and/or professionally trained with income levels above the national average. They are an expensive human resource in limited supply, thus the issue of WFC which has been shown to lower performance and retention is of significant interest to employers. Banks traditionally have primarily employed men and schools mainly women. Both professions have been shown to have high levels of WFC in advanced economies (Chandola *et al.*, 2004; Emslie *et al.*, 2004; Panatik *et al.*, 2011). However, their tasks differ, and teachers also have responsibility for student behaviour, wellbeing, and interactions with parents; an emotional dimension to their job found to make them particularly vulnerable to psychological stress (Erdamar and Demirel, 2014). The research adopts a mixed method approach in two stages:

Stage one

Aim

The stage one qualitative study aimed to establish if WFC was an issue, to explore interviewee's experience of WFC, to investigate the relevance of the Carlson *et al.*'s (2000) scale, and to devise questions relating to the organisational and cultural context for the surveys.

Method

In-depth interviews were conducted with 15 bank employees, purposively selected to cover variation in size and ownership, role, gender, age and marital status. Participants consisted of executive manager (1), manager (2), senior assistant manager (2), assistant managers (5), staff assistant (1), management trainee (1), multi-duty assistant (1), bank assistant (1) and a cashier (1). Sixty percent were male (9) and 40% female (6). Five were aged 36-45 years, four 36-35 years, two over 45 years and two 18-25 years. Tenure ranged from 3 to 20 years.

Results

Thematic content analysis of the interview transcripts found time-based and strain-based WFC were a major problem, but no evidence of behaviour-based WFC from the sample. However, an additional theme concerning the distractions of thinking about home while at work and vice versa was identified as a major concern. Nine statements relating to this theme were selected from the interview data to measure psychological WFC and added to the 18 item Carlson *et al.* (2000) scale for the survey questionnaire (the 6 items retained after analysis are shown Table III).

Stage two

Aim

The stage two aim was to collect systematic survey data to assess to the extent to which the characteristics of collective cultures associated with WFC were relevant, and to develop, validate and test the WFC scale.

Methods

First, a draft self-report questionnaire was designed, translated into local languages and back to English to ensure accuracy, piloted on 20 bank employees and revised. Twelve banks (3 multi-national, 3 national-state owned and 6 national-private), were randomly selected from a list of 97. The questionnaire was sent to 849 staff randomly selected from employee lists with a later reminder of the deadline. The usable response rate was rate 67% ($n=569$). The data were analysed and a new three form model of WFC developed.

Second, the WFC scale was tested on a different professional group-secondary school teachers. Fifty four secondary schools were randomly selected from the list of the Ministry of Education. After minor modifications to employment details, the bank self-report questionnaire was sent to all 420 teaching staff, followed by a reminder. The usable response rate was 53% ($n=223$).

Investigation of non-response bias using the 'surrogate' method (Wallace and Mellor, 1988) showed that there is no significant difference between early and late responses in both surveys.

Survey respondents' profile and cultural context

Of the bank respondents, 59% are male and 41% female, whereas 67% of the teachers are

female. They are relatively young, 86% bank staff and 87% teachers are aged under 46, and 83% bank staff and 67% teachers are married. Virtually all bank staff (92%) and teachers (89%) were educated to graduate level or above. Average tenure is 16.27 years ($SD=7.97$) for bank staff and 14.13 years ($SD=6.41$) for teachers. The working week for both men and women is over 40 hours for bank staff, and for teachers 36 hours plus preparation and marking time. Working part-time was not an option in either occupation.

Most respondents live in large extended family households (mean size 5.3 for bank staff, 5.1 for teachers) consisting of parents (bank staff 86%, teachers 81%), siblings and other extended family members (27% bank staff, 31% teachers). The majority have at least one child (bank staff 79%, teachers 83%), and at least one dependent parent or parent-in-law living with them (bank staff 86%, teachers 83%). Care and domestic work are managed almost exclusively within the extended family. In both cases, 57% of relatives take primary responsibility for childcare and most contribute child, eldercare, and domestic assistance. Only 2% and 1% of men in banks and schools respectively said they had primary responsibility for the care of children.

While there was minimal formal organizational support for balancing the demands of work and family, almost all respondents in both occupations agreed with statements indicating a great deal of support from supervisors and colleagues (see Table I). Workplace relations are described as family-like, and supervisors and colleagues routinely attended family events. There is a very high degree of integration between home and work for virtually all respondents. The reliability coefficient Cronbach's alpha for work support was .92 for bank staff and .89 for teachers.

[Table I near here]

Respondents generally hold traditional views about the role of women. Most (81% bank staff and 79% teachers) agreed/strongly agreed with the statement "A woman should not expect to have the same freedom as a man", and 58% bank staff and 53% teachers agreed/strongly agreed that "Even if the wife works outside the home, the husband should be the main breadwinner and the wife should carry the responsibility for the home and children".

Thus, the respondents are typical of the growing professional/middle class in Sri Lanka. However, the characteristics of collective culture associated with WFC remain very relevant to their family and working life.

Measures

Work-to-family conflict and Family-to-work conflict questionnaire

WFC was measured by agreement-disagreement with 27 statements. These included the 18 item Carlson *et al.* (2000) scale. An example for work-to-family conflict is: 'my work keeps me from my family activities more than I would like', and for family-to-work conflict is: 'the time I spend on family responsibilities often interferes with my work responsibilities'. The remaining nine measuring psychological-based WFC were developed from the exploratory study. An example item of psychological-based work-to-family conflict is: 'I often think about work-related problems at home that prevent me doing the tasks at home' and psychological-based family-to-work conflict; 'I often think about family-related problems at work that prevent me doing the tasks at work'. The Cronbach's α for time-based work-to-family conflict was .90/.89 (bank staff/teachers), strain-based work-to-family conflict .76/.86 (bank staff/teachers), psychological-based work-to-family conflict .83/.84 (banks/teachers), time-based family-to-work conflict .91/.94 (banks/teachers), strain-based family-to-work conflict .76/.85 (bank staff/teachers), psychological-based family-to-work conflict .76/.73 (bank staff/teachers). They show a high degree of scale reliability. However, the Cronbach's

α for the behaviour-based family-to-work conflict .30/.28 (bank staff/teachers) and behaviour-based work-to-family conflict .37/.32 (banks/teachers) were low. They fail to meet the usual 0.5 threshold for inclusion and, after further analysis, were eliminated from the WFC scale.

Job and family satisfaction

Job satisfaction and family satisfaction are the key outcome variables of work-family conflict (Wayne *et al.*, 2004). Job satisfaction was assessed using the Michigan Organizational Assessment Questionnaire (Cammann *et al.*, 1979). It measures agreement-disagreement with three statements, for example 'All in all, I am satisfied with my job'. Family satisfaction was measured by substituting the word 'family life' instead of 'job', for example 'All in all, I am satisfied with my family life' (O'Driscoll *et al.*, 2004). The Cronbach's α for job satisfaction were .85 (bank staff) and .88 (teachers), and family satisfaction were .82 (bank staff) and .90 (teachers).

Results

Analysis and Scale development

In stage 2 the 27-item WFC scale was assessed using factor analysis/principal components analysis (PCA). Preliminary analysis found the bank survey data to meet the requirements for factor analysis/PCA in terms of sample size (>200), normal distribution, homoscedasticity and linearity. The Kaiser–Meyer–Olkin (KMO) measure and Bartlett's test of sphericity were used to ensure that the data have sufficient correlations to perform factor analysis/PCA (Hair *et al.*, 2014). The KMO (.67) and the significant Bartlett's test of sphericity χ^2 (300) = 5232.55, $p < .001$ confirmed that the dataset is suitable for the use of factor analysis/PCA. Both Exploratory Factor Analysis with principal axis factoring method and PCA were then applied. However, since both methods had similar results, as suggested by Velicer and Jackson (1990), PCA has been chosen as an appropriate method for a large dataset.

At the first step, two items were discarded because of multicollinearity. At the second, another 7 items were removed for: failure to score mean value where the mean score of the responses reflects the existence of particular phenomenon, overlapping items-loadings, lower reliability and the ratio of three variables per factor (Carlson *et al.*, 2000; Hair *et al.* 2014). As expected, this removed all the statements measuring behavioural WFC. The remaining 18 statements comprising the WFC scale related to time, strain and psychological based WFC are shown in Table III. Finally, the 18 items were subjected to PCA to confirm that the deletion of variables did not affect the factor structure. The KMO .709, exceeded the minimum recommended value of .6 and the Bartlett's test of sphericity is significant (χ^2 (153) = 4559.03, $p = .000$). As recommended by Carlson *et al.* (2000) and Hair *et al.* (2014), oblique rotation with direct oblimin was employed and a simple structure was generated. The decision was made to retain six factors based on both Kaiser's criterion where eigenvalues for the first six component are greater than 1, and parallel analysis where the six components have eigenvalues exceeding the corresponding criterion value of the parallel analysis (see Table II). All factor loadings were greater than .794 contributing to 75.42% of the variance (see Table III).

[Table II near here]

[Table III near here]

Scale testing and validation

Since the confirmatory factor analysis (CFA) based on the same data set used in the EFA yields high danger of overfitting (e.g. Fabrigar *et al.*, 1999; Fokkema and Greiff, 2017), data from the teacher's survey were used to perform CFA to test the robustness of the model and validate the scale developed from the bank data. As a caveat, prior to conducting CFA, the data set was screened using the Mahalanobis *d*-squared statistical test and found minimal evidence of serious multivariate outliers.

Confirmatory factor analysis (CFA) was conducted and the results of the CFA are presented in Figure I below.

[Figure I near here]

As shown in above Figure 1, the results of the standardised factor loadings are statistically significant. The results of the hypothesised model noted as $\chi^2 (120) = 249.55$, $p < 0.05$, CMIN/DF (2.08), RMSEA (.04), PCLOSE (.92), CFI (.97), SRMR (.04) were indicative of well-fitting model (Hair *et al.*, 2014).

The analysis has demonstrated that a model with a six-factor structure (time-based, strain-based and psychological-based work-to-family conflict and family-to-work conflict) is the best fit with the bank survey data. It confirms the significance of the new psychological-based dimension and the irrelevance of behaviour-based WFC.

The psychometric properties of the model were then assessed. The reliability, convergent validity and discriminant validity were examined using composite reliability (CR), average variance extracted (AVE), factor loadings, maximum shared variance (MSV), and average squared variance (ASV). The results disclose strong reliability and convergent validity of the model (see Table III): the AVE was greater than .50; the CR was greater than .70; and highly significant factor loadings (greater than or close to .70). In addition, the study also confirmed the discriminant validity of the model: $MSV < AVE$; $ASV < AVE$; and low factor correlations (see Table IV).

[Table IV near here]

Next, four models developed from the confirmatory factor analysis were robustly assessed to find out the best fitting model for teachers: (a) Model 1- the new six factor model (three-dimensions-time, strain and psychological in two directions); (b) Model 2- two directions (work-to-family conflict and family-to-work conflict); (c) Model 3-Work-family conflict as unidirectional; (d) Model 4-Carlson *et al.*'s six factor model (three dimensions -time, strain and behaviour in two directions). As can be seen in Table V, Model 1 the new six-factor model shows stronger model fit indices than other models: $\chi^2 (120) = 205.99$, CMIN/DF (1.72), RMSEA (.05), CFI (.96), GFI (.91), ECVI (1.39), AIC (307.99), and SRMR (0.05).

[Table V near here]

The analysis above has affirmed the exclusion of the behavioural dimension and inclusion of the new psychological dimension of WFC. Thus, there are differences in the form that WFC takes within this collective cultural context.

Table VI below also confirms that, except for the behavioural dimension, WFC is uniformly very high in both occupations.

[Table VI near here]

In the next stage, measurement invariance models, namely configural invariance, metric invariance, scalar invariance and measurement error invariance, were examined. Multiple-

group CFA were used to see if the new six-factor structure (i.e. items scores and its underlying latent structure) measuring WFC operate equivalently across different populations, namely bank staff and teachers (see Byrne, 2016; Cheung and Rensvold, 2002; French and Finch, 2006). The results of the measurement invariance models are presented in Table VII.

[Table VII near here]

As can be seen in Table VII, goodness-of-fit results from the test of configural invariance (unconstrained) model and the metric invariance model provided evidence of well-fitting models: configural invariance- χ^2 (df) = 455.76 (240), CFI = .967, and $RMSEA$ = .03; and the metric invariance: χ^2 (df) = 478.45 (258), CFI = .966, and $RMSEA$ = .03. The model fit of the configural and metric invariance models was compared and the differences in χ^2 and CFI supported the metric invariance: $\Delta\chi^2$ (Δdf) = 22.69 (18), p = .203 and ΔCFI = .001. Therefore, it can be concluded that the factor loadings were operating identically across both samples. Model fit indices confirmed that the scalar invariance model and the measurement error invariance model are acceptable models: scalar invariance model- χ^2 (df) = 499.50 (276), CFI = .964 and $RMSEA$ = .03; and χ^2 (df) = 540.12 (309), CFI = .958, and $RMSEA$ = .04. The model fit of the scalar invariance and measurement error invariance models was compared with the configural invariance model and the differences in χ^2 and CFI supported both the scalar invariance ($\Delta\chi^2$ (Δdf) = 43.74 (36), p = .176 and ΔCFI = .003) and measurement error invariance ($\Delta\chi^2$ (Δdf) = 84.36(69), p = .101 and ΔCFI = .009). Therefore, evidence of measurement invariance between bank staff and teachers validates the new six-factor model.

Predictive validity, job satisfaction and gender differences in WFC

Structural equation modelling (SEM) was applied to gauge the predictive validity of the new three-dimensional model. WFC and FWC were related to two outcome measures: job satisfaction and family satisfaction. As shown in Table VIII, the three dimensions of work-to-family conflict had a negative impact on job satisfaction: bank staff Time-based WFC (β = -.27, $C.R$ = -7.48, P < .001; Strain-based WFC (β = -.32, $C.R$ = -5.82, P < .001), and Psychological-based WFC (β = -.33, $C.R$ = -8.49, p < .001) and teachers Time-based WFC (β = -.24, $C.R$ = -4.43, p < .001; Strain-based WFC (β = -.26, $C.R$ = -4.31, p < .001), and Psychological-based WFC (β = -.33, $C.R$ = -5.34, p < .001).

The three dimensions of family-to-work conflict had negative impact on family satisfaction: bank staff Time-based FWC (β = -.19, $C.R$ = -4.77, p < .001), Strain-based FWC (β = -.32, $C.R$ = -8.14, p < .001), and Psychological-based FWC (β = -.32, $C.R$ = -6.81, p < .001) and teachers Time-based FWC (β = -.18, $C.R$ = -2.55, p < .001), Strain-based FWC (β = -.29, $C.R$ = -5.84, p < .001), and Psychological-based FWC (β = -.40, $C.R$ = -4.17, p < .001). Thus, both work-to-family conflict and family-to-work conflict dimensions predicted job satisfaction and family satisfaction in both samples indicating strong predictive validity per se (see Table VIII).

[Table VIII near here]

The behaviour forms of WFC and FWC were not correlated with either outcome variable (job/family satisfaction): the results are clearly consistent with the decision made for its exclusion.

Finally, gender differences were observed in both samples (Table IX). Male respondents reported greater work-to-family conflict than female: bank staff t (567) = 8.62, p < 0.01; with a medium-sized effect Cohen's d = .72 and teachers t (221) = 4.10, p < 0.01; with a medium-

sized effect Cohen's $d = .58$. Women reported greater family-to-work conflict than men: bank staff $t(221) = -10.48, p < 0.01$; with a large-sized effect Cohen's $d = .86$ and teachers $t(221) = -4.71, p < 0.01$; with a medium-sized effect Cohen's $d = .68$. Hence, family-to-work and work-to-family conflict are high and clearly a problem for both men and women.

[Table IX near here]

Discussion

Work-family conflict is becoming a salient issue for governments and employers in developing nations. However, there is inadequate evidence from research in collectivist cultures on which to base government policies and organisational practice. The study aimed to advance the conceptualisation and measurement of WFC by developing and validating a WFC scale that is relevant to a collectivist culture setting. We have argued that the widely used multi-dimensional WFC scale constructed by Carlson *et al.* (2000) fails to capture a psychological dimension of family and working life that is particularly relevant to collective cultures. Our findings confirm this in the case of the bank staff and teachers surveyed. Moreover, we noted an absence of empirical evidence of behavioural WFC in these samples. On this basis, a new scale consisting Carlson *et al.*'s dimensions of time and strain with an additional psychological dimension was developed and applied in the study.

The analysis demonstrated that a model with a six-factor structure (time-based, strain-based and psychological-based work-to-family conflict and family-to-work conflict) represents the most theoretically and statistically sound measure of WFC in this case. The model accounted for a greater amount of variance (75.42%) compared to 52% for Carlson *et al.*'s (2000) model and shows better predictive validity. Notably, it demonstrates the importance of a new psychological-based dimension relating to the worry and distraction of thinking about work whilst at home and home whilst at work supporting the contentions of Ashforth *et al.* (2000), Carlson and Frone (2003), Clark (2000) and Foucreault *et al.* (2018). As with most studies using the Carlson *et al.* (2000) scale, time and strain are confirmed as important dimensions of WFC. However, it adds to the growing number of studies finding behaviour-based WFC irrelevant: Griggs *et al.* (2013); Kailasapathy *et al.* (2014); Lu *et al.* (2010); and Powell and Greehaus (2010).

Implications

The findings raise questions about how WFC is conceptualised and how it should be measured. Is the concept of WFC culture-specific or generalisable across cultures? Our study was informed by emerging research in individualistic cultures that identified a psychological dimension to WFC. We also found it to be important in a collectivist cultural context. This suggests that the psychological dimension may be a universal characteristic of WFC. On the other hand, the study adds to growing evidence that the behavioural dimension is not relevant in a collective cultural setting. However, we would not advocate its omission from the work-family conflict scale as it identified a major cultural difference in this study. Indeed, there is cultural variation within nations and between organisations (Dheer *et al.*, 2015; Venaik and Midgley, 2015). Accordingly, following Carlson and Frone (2003), we propose an eight-factor model: time-based, strain-based, behaviour-based and psychological-based work-to-family conflict and family-to-work conflict as a starting point for the study of WFC in any cultural setting. Therefore, we would argue for an 'emic-etic' approach to the

study of WFC, recognising that some elements may be culture specific and others generalisable across cultures (Brislin, 1976).

From a practice perspective, the study identifies significant cultural differences that have implications for managers and policy makers. Despite rapid social and economic change, the characteristics of collective culture associated with WFC are relevant to the highly educated professional employees we surveyed. The study found major differences in work and family life compared with most individualistic contexts and these are reflected in their experience of WFC. The extended family is the main source of social identity, economic and welfare provision. Families are large and responsibilities extensive, including, not only financial and caring assistance, but also matters such as arranging marriages, finding employment, and religious, ceremonial and community duties. Work entails long, inflexible hours with minimal organisational assistance to accommodate family life. For many, being obliged to engage in the celebrations and family events of subordinates and colleagues is an added work responsibility. Work and home are closely integrated. The blurring of the boundary between home and work makes it difficult to cut off from the pressures of work and home and, as research has shown, it can lead to stress. Thus, while the “family type”, personal, nature of working relations largely eliminates the behavioural conflict found in western studies, it increases vulnerability to emotional distress. The psychological cost of reconciling the conflicting demands of work and family roles have been omitted in research, but clearly is an important aspect of WFC for both men and women in these samples.

The surveys found high levels strain, time and psychological WFC for men and women that had negative impact on their satisfaction in the family and work role. These findings reflect the greater demands placed on individuals at home and at work in a collective cultural context. Some scholars have suggested that WFC is not problematic for employers in the competitive labour markets of developing economies (Shockley et al., 2017; Billing *et al.*, 2014). However, while this may apply to less skilled labour, in this case there has been considerable investment in education and training, and as the average tenure is long, staff will have significant experience and tacit knowledge. For governments and employers, underutilising or losing this expensive resource through turnover, sickness, absenteeism, or sub-optimal performance is a problem in any context. Moreover, as more women are drawn into the labour market the capacity of the extended family to provide support for its members may diminish leading to greater WFC. In this scenario, governments and organisations will be under pressure to take a more active role in providing health, welfare and work-life balance support.

Finding a solution to the problem of WFC in this context presents a considerable challenge. Human resource practice in this area is relatively under-developed and there are very few studies of the efficacy of different family-friendly policies in collective societies. In the West, notably northern Europe, there is often substantial assistance from employing organisations and the state. None, however, offer ideal solutions. The remedial measures offered focus largely on mothers. The most widespread provision, child-care, is unlikely to alleviate WFC where traditionally care is managed within the extended family and only a tiny of proportion of men see it as their primary responsibility. Leaving children in the care of strangers might even increase psychological WFC. Moreover, it does not address the many other demands of the family role on both men and women. Part-time working, another commonly used option, is often associated with greater job satisfaction and lower WFC and would be appropriate for those working long, full-time hours as in this case. However, extensive research shows that without careful management, it typically entails stigma, underutilisation of skills, and

diminished career prospects; men rarely choose this option (Williams *et al.*, 2013). Moreover, part-time working entails a reduction in income, not just for the individual concerned but for any extended family members dependent on it.

Ultimately, the success of any policy depends on implementation at workplace level (Edwards and Robinson, 2000). Currently, respondents do not have formal entitlements to time off or flexible hours to deal with the demands of family life, but most report strong informal support from managers, supervisors and colleagues should problems arise. Nonetheless, WFC remains a significant issue and managers will be under pressure to respond. Fears of favouritism or over-indulgence depressing productivity could prompt the introduction of strict formal HR policies to ensure equity and to enhance managerial control. However, unthinking adoption of western human resource management practice could be counter-productive in a collective context. Unless carefully applied, formal regulation can reduce flexibility for those who need it and provoke resentment in colleagues who do not benefit from it (Perrigino *et al.*, 2018). Undermining the current informal support system could provoke behavioural WFC. The family is a primary motivator in collective societies and managers who take an interest in and are sympathetic to family needs reap the rewards of better-quality work and higher productivity (Wickramasinghe, 2012; Wright *et al.*, 2008). Thus, there are no simple solutions and having access to research evidence based on culture appropriate measures of WFC will be critical in designing effective remedies.

Limitations

The term “psychological” is used to describe the new dimension of WFC to maintain consistency with previous studies, notably Carlson and Frone (2003). However, the term psychological is broad. The statements used to define it in the WFC scale in this study might be summarised more precisely as “worry and distraction”. The cross-sectional study is based on only two middle-class occupations in a collectivist culture at a time of rapid change. The selected occupations typically have high levels of stress that may have enhanced the significance of psychological WFC. Moreover, the use of self-report surveys, albeit complemented by exploratory qualitative research and pilot interviews, limited the complexity of the data collected. The extent to which the findings are generalisable is somewhat uncertain. Further research is needed to test the fit of the new model with a wider range of occupations and in a variety of organisational and collective culture contexts.

Conclusion

Most WFC research has been carried out in the individualistic cultures of advanced economies and many scholars have questioned the application of the same concepts and methodologies in a collective cultural context. Drawing on work-family border theory, a new psychological dimension was developed, added to the most commonly used multi-dimensional scale measuring time, strain, and behaviour WFC, and validated it in a collective cultural setting. It found very high levels of time, strain, and psychological WFC, but no evidence of a behavioural dimension. Thus, the new measure was successful in identifying cultural differences in the form of WFC and in developing a more reliable scale for its measurement. Understanding these differences is critical to designing effective government and organisational policies to address the growing issue of WFC in developing economies. It will be of interest to scholars researching and teaching international management, management consultants, policy makers and managers seeking to understand the problem of WFC in collective societies. The findings also have relevance for the management of culturally diverse workforces in advanced economies.

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Table I. Work Support and Work/Home Integration

Work support Items			<i>M</i>	<i>SD</i>	Strongly disagree %	Disagree %	Uncertain %	Agree %	Strongly agree %
My supervisor is supportive when I have a work problem	Bank staff (n=569)		4.11	.54	1	1	5	75	18
	Teachers (n=223)		4.43	.69	0	2	6	40	52
My supervisor accommodates me when I have family or personal business to take care of e.g. medical appointment, meeting with child's teacher, etc.	Bank staff (n=569)		4.51	.69	1	1	5	33	60
	Teachers (n=223)		4.27	.62	1	1	4	60	34
I feel my supervisor is like a family member and understands my family demands	Bank staff (n=569)		4.09	.61	1	1	8	69	21
	Teachers (n=223)		4.50	.64	0	1	4	39	56
My supervisors usually attend my family events such as marriage, birthday, funeral etc.	Bank staff (n=569)		4.21	.66	1	2	7	58	32
	Teachers (n=223)		4.59	.64	1	1	3	31	64
My colleagues are supportive when I have a work problem	Bank staff (n=569)		4.50	.72	1	1	5	33	60
	Teachers (n=223)		4.60	.67	0	1	5	27	67
My colleagues usually attend my family events such as marriage, birthday, funeral etc.	Bank staff (n=569)		4.46	.78	1	1	8	31	59
	Teachers (n=223)		4.55	.74	0	1	9	23	67
Source: Survey data from Bank staff (n=569) and Teachers (n=223)									

Table II. Summary results of factor extraction - Kaiser's criterion and Parallel analysis

Component	Eigenvalues from PCA	Kaiser's criterion		Parallel analysis (PA)	
		% of Variance	Cumulative %	Criterion value from PA	Decision
1	2.907	16.152	16.152	1.3260	Retained
2	2.620	14.556	30.708	1.2627	Retained
3	2.330	12.946	43.653	1.2155	Retained
4	1.997	11.096	54.749	1.1713	Retained
5	1.959	10.883	65.632	1.1320	Retained
6	1.762	9.786	75.419	1.0970	Retained
7	.570	3.164	78.583	1.0657	Rejected
8	.535	2.973	81.556	1.0347	Rejected
9	.499	2.772	84.329	1.0059	Rejected

Source: Survey data from Bank staff (n=569)

Table III. Summary of exploratory factor analysis

No	Items	Factors						Communality
		Time-based FWC	Time-based WFC	Psychological-based WFC	Psychological-based FWC	Strain-based WFC	Strain-based FWC	
Q10	The time I spend on family responsibilities often interferes with my work responsibilities	.947						.897
Q12	I have to miss work activities due to the amount of time I must spend on family responsibilities	.920						.858
Q11	The time I spend with my family often causes me not to spend time in activities at work that could be helpful to my career	.894						.796
Q2	The time I must devote to my job keeps me from participating equally in household responsibilities and activities		.922					.859
Q1	My work keeps me from my family activities more than I would like		.915					.840
Q3	I have to miss family activities due to the amount of time I must spend on work responsibilities		.903					.815
Q26	I am often not in good mood at home due to the preoccupation with work responsibilities that prevent me doing the tasks at home			.909				.823
Q24	When I am at home I see things need doing at work; planning and scheduling work-related activities that prevent me doing the tasks at home			.885				.770
Q19	I often think about work-related problems at home that prevent me doing the tasks at home			.800				.693
Q22	I am often not in good mood at work due to the preoccupation with family responsibilities that prevent me doing the tasks at work				.835			.713
Q20	When I am at work I see things that need doing at home; planning and scheduling family related activities that prevent me doing the tasks at work				.822			.677
Q23	I often think about family related problems at work that prevent me doing the tasks at work				.816			.674
Q4	When I get home from work I am often too frazzled to participate in family activities/responsibilities					-.841		.714
Q5	I am often so emotionally drained when I get home from work that it prevents me from contributing to my family					-.838		.707
Q6	Due to all the pressures at work, sometimes when I come home I am too stressed to do the things I enjoy					-.794		.678
Q14	Because I am often stressed from family responsibilities, I have a hard time concentrating on my work						.825	.677
Q15	Tension and anxiety from my family life often weakens my ability to do my job						.825	.689
Q13	Due to stress at home, I am often preoccupied with family matters at work						.811	.698
								Total
	Eigenvalues	2.907	2.620	2.330	1.997	1.959	1.762	13.585
	Percentage of variance	16.152	14.556	12.946	11.096	10.883	9.786	75.419
	Cronbach's α	0.912	0.902	0.833	0.762	0.763	0.759	

Source: Survey data from Bank staff ($n=569$)

Extraction Method: Principal Component Analysis; Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 6 iterations.

WFC- Work to family conflict; **FWC-**Family to work conflict

Table IV. Construct reliability, Convergent validity and Discriminant validity

<i>Reliability and variance</i>					<i>Factor correlation matrix and \sqrt{AVE} on the diagonal</i>					
	<i>CR</i>	<i>AVE</i>	<i>MSV</i>	<i>ASV</i>	Strain-based WFC	Time-based WFC	Strain-based FWC	Psychological- based WFC	Psychological- based FWC	Time-based FWC
Strain-based WFC	0.858	0.669	0.012	0.004	0.818					
Time-based WFC	0.888	0.727	0.023	0.010	0.108	0.852				
Strain-based FWC	0.857	0.668	0.013	0.005	0.015	0.086	0.817			
Psychological- based WFC	0.853	0.664	0.005	0.002	0.008	0.071	0.011	0.815		
Psychological- based FWC	0.746	0.502	0.036	0.017	0.087	0.152	0.116	0.051	0.709	
Time-based FWC	0.941	0.841	0.036	0.009	0.028	0.061	0.078	0.009	0.190	0.917

Source: Survey data from Teachers ($n=223$)
CR: Construct reliability; AVE: Average variance extracted; MSV: Maximum Shared Variance; ASV : Average Shared Variance
WFC- Work-to-family conflict; FWC- Family-to-work conflict

Table V. Model comparisons

Structural Models	χ^2 ($n=223$)	df	χ^2/df	$\Delta\chi^2$	Δdf	<i>CFI</i>	<i>GFI</i>	<i>AIC</i>	<i>ECVI</i>	<i>MECVI</i>	<i>RMSEA</i>	<i>SRMR</i>
Model 1	205.99	120	1.72	--	--	.96	.91	307.99	1.39	1.43	.05	.05
Model 2	1278.68	134	9.54	1072.69	14	.46	.63	1352.68	6.09	6.12	.20	.17
Model 3	1885.86	135	13.97	1679.87	15	.18	.54	1957.86	8.82	8.85	.24	.21
Model 4	345.83	120	2.88	139.84	0	.89	.82	447.83	2.02	2.06	.09	.07

Source: Survey data from Teachers ($n=223$)

Table VI. The four dimensions of Family-to-work and Work-to-family Conflict

Dimensions	Direction	Bank Staff		Teachers	
		Mean	SD	Mean	SD
Time	Work-to-family conflict	4.30	.65	4.32	.61
Strain		4.40	.53	4.38	.58
Behaviour		1.57	.46	1.57	.45
Psychological		4.20	.80	4.24	.74
Time	Family-to-work conflict	4.54	.57	4.60	.53
Strain		4.09	.82	4.10	.89
Behaviour		1.56	.53	1.54	.52
Psychological		4.44	.63	4.44	.58

Source: Survey data from Bank staff ($n=569$) and Teachers ($n=223$)

Table VII. Measurement invariance between Bank staff and Teachers

CFA models	χ^2	df	$\Delta\chi^2$	Δdf	p	CFI	ΔCFI	RMSEA
Configural invariance	455.76*	240	----	----	----	.967		.03
Metric invariance	478.45*	258	22.69	18	.203	.966	.001	.03
Scalar invariance	499.50*	276	43.74	36	.176	.964	.003	.03
Measurement error invariance	540.12*	309	84.36	69	.101	.958	.009	.04

Source: Survey data from Bank staff ($n=569$) and Teachers ($n=223$); * $p < .01$

Table VIII. Predictive validity of the new six-factor work-family conflict model

			Bank staff ^a			Teachers ^b		
			Estimate	S.E.	C.R.	Estimate	S.E.	C.R.
Job satisfaction	<-----	Time-based WFC	-.27***	.04	-7.48	-.24***	.05	-4.43
Job satisfaction	<-----	Strain-based WFC	-.32***	.05	-5.82	-.26***	.06	-4.31
Job satisfaction	<-----	Psychological-based WFC	-.33***	.04	-8.49	-.33***	.06	-5.34
Family satisfaction	<-----	Psychological-based FWC	-.32***	.05	-6.81	-.40***	.10	-4.17
Family satisfaction	<-----	Strain-based FWC	-.32***	.04	-8.14	-.29***	.05	-5.84
Family satisfaction	<-----	Time-based FWC	-.19***	.04	-4.77	-.18***	.07	-2.55
Family satisfaction	<-----	Job satisfaction	.20***	.07	2.64	.35**	.14	2.58

Source: Survey data from Bank staff ($n=569$) Teachers ($n=223$)

** $p < 0.01$; *** $p < 0.001$

a – $n = 569$; $\chi^2(244) = 439.80$, CMIN/DF (1.80), RMSEA (.04), CFI (0.97), GFI (.94), ECVI (.971), AIC (551.80), and SRMR (0.06)

b- $n = 223$; $\chi^2(244) = 343.61$, CMIN/DF (1.41), RMSEA (.04), CFI (0.97), GFI (.90), ECVI (2.05), AIC (455.60), and SRMR (0.05)

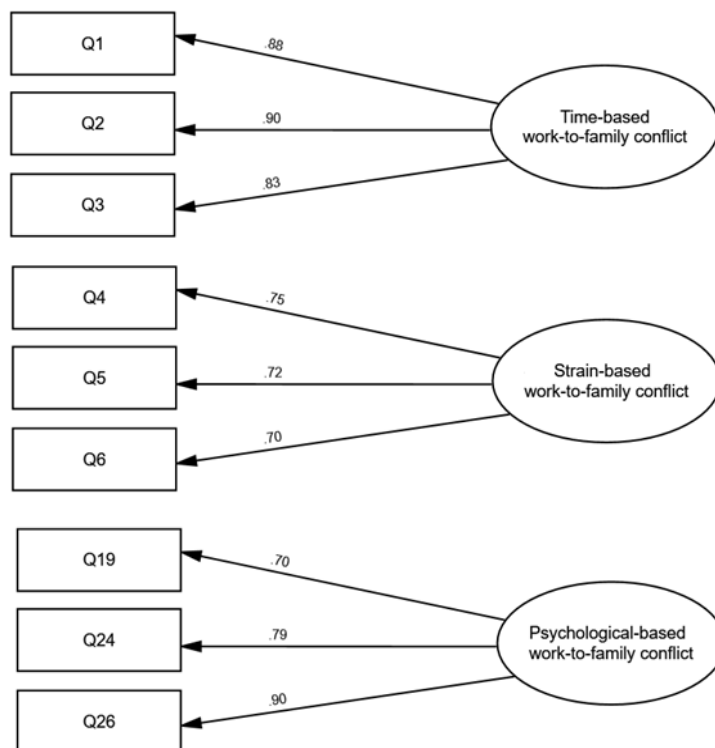
Note: ECVI is lower than both independent model and saturated model for both banks and schools

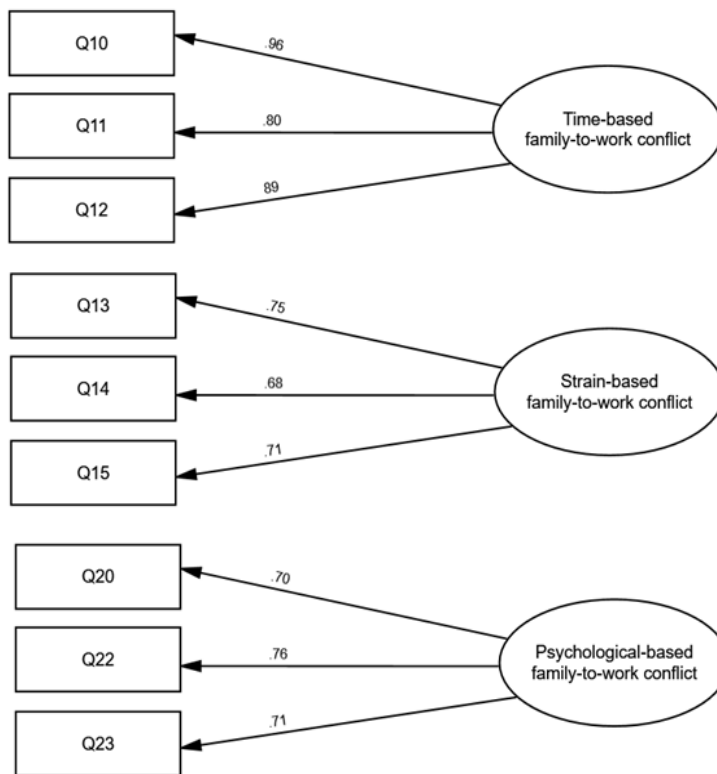
WFC- Work-to-family conflict; **FWC-** Family-to-work conflict

Table IX. Gender difference in Work-to-family Conflict and Family-to-work Conflict

Variables		Gender	<i>n</i>	df	Mean	<i>SD</i>	<i>t</i>	Sig.	Cohen's <i>d</i>
Work-to-family conflict	Bank staff	Male	333		4.41	.36			
		Female	236	567	4.14	.38	8.62	.00	.72
Family-to-work conflict	Bank staff	Male	333		4.23	.39			
		Female	236	567	4.54	.33	-10.48	.00	.86
Work-to-family conflict	Teachers	Male	149		4.39	.35			
		Female	74	221	4.18	.38	4.10	.00	.58
Family-to-work conflict	Teachers	Male	149		4.30	.36			
		Female	74	221	4.54	.34	-4.71	.00	.68

Source: Survey data from Bank staff (*n*=569) and Teachers (*n*=223)

Figure I. Confirmatory Factor Analysis-Model of Work-Family Conflict



Source: Survey data from Teachers ($n=223$)
 The questions Q1-Q26 are shown in full table III above
